

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE****ANONYMOUS EMAIL GUARANTOR PROCESSING**

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**FIELD OF THE INVENTION**

The present invention relates generally to information

10 processing systems and more particularly to a methodology and implementation for using anonymous email accounts in business transactions.

**15 BACKGROUND OF THE INVENTION**

The widespread acceptance and use of various kinds of computing devices in combination with the Internet are creating an increasing number of new applications using the

20 Internet. More and more individuals are making purchases of goods and other business transactions using the Internet. Business transactions are being initiated and completed by individuals through the use of various computing devices which may include, for example, personal computers, so-called personal digital assistant devices (PDA) and even 25 mobile and cell-based computing devices such as mobile or cell phones.

In many instances, however, and notwithstanding many recent 30 advances in providing increased security for business transactions conducted over the Internet, many individuals

are still hesitant to provide personal credit card information to an unknown web site, lender or supplier over the Internet. At the same time, most web-based businesses, including suppliers and lenders of rental items for example, 5 will not ship or lend a product unless sufficient personal and purchase guarantee or payment-related information about the buyer has been received.

Thus, there is a need to provide an improved method and 10 system for enabling Internet-related transactions to be initiated and completed using an anonymous buyer account while providing a measure of payment or recourse security for the lender or seller.

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#### **SUMMARY OF THE INVENTION**

A method and implementing system are provided in which anonymous email accounts are established between a user and 20 a guarantor server. Items may then be loaned or purchased by an individual using the anonymous email account. In an exemplary embodiment, an individual user receives a so-called "smart card" which is programmed to contain certain limitations on purchases and/or borrowings by the user as 25 well as policies of a selling or loaning enterprise. The guarantor of the smart card maintains a record of the user and the smart card does not contain any personal information about the user but does contain the anonymous email account of the user. The programmed smart card is then read by a 30 reading device to determine if a desired sale or borrowing meets the criteria programmed into the smart card. If the proposed sale or borrowing is authorized or within the

limits of the smart card, the transaction is approved. Communication between the parties of transactions in which the card is used is conducted through use of only the anonymous email address of the user.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention can be 10 obtained when the following detailed description of a preferred embodiment is considered in conjunction with the following drawings, in which:

Figure 1 is an illustration of an exemplary system in which 15 the present invention may be implemented;

Figure 2 is an illustration of an arrangement of the contents of a smart card which may be used in an implementation of the present invention;

20 Figure 3 is a more detailed schematic illustration of several of the system components of the exemplary embodiment;

25 Figure 4 is an illustration of an exemplary anonymous server database which may be used in connection with the present invention;

30 Figure 5 is an illustration of an exemplary inventory server database which may be used in connection with the present invention;

Figure 6 is a flow diagram illustrating several exemplary steps which may be implemented in issuing a smart card to a user;

5 Figure 7 is a flow diagram illustrating several exemplary steps which may be implemented in programming a user's smart card for subsequent use; and

10 Figure 8 is a flow chart illustrating a methodology which may be used in one exemplary implementation of the present invention.

#### DETAILED DESCRIPTION

15 The various methods discussed herein may be implemented within a typical computer-related system which may include a workstation or personal computer. For example, a customer may access the Internet through a server device using a  
20 personal computer, a workstation or a wireless or other portable device, all of which have the same basic computer system functionality. In the example illustrated, the customer uses a personal computer and connects to a web site through an interconnection network such as the Internet. In  
25 general, an implementing computer system may include a plurality of processors in a multi-bus system in a network of similar systems. However, since the workstation or computer system used in practicing the present invention in an exemplary embodiment, is generally known in the art and  
30 composed of electronic components and circuits which are also generally known to those skilled in the art, circuit details beyond those shown are not specified to any greater

extent than that considered necessary as illustrated, for the understanding and appreciation of the underlying concepts of the present invention and in order not to obfuscate or distract from the teachings of the present invention. Although a personal computer is used as an example of an implementation of the present invention, it is understood that any computing device, including but not limited to wireless devices, cell phones, PDAs or custom devices, may also be used.

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In Figure 1, there is shown a user device 101 which may be a personal computer (PC) or a hand-held, mobile or cellular computing device capable of connecting through a connection network 103 or directly to a computer server such as, for example, a website server accessible on the World Wide Web through the Internet. In Figure 1, there is also shown an interconnection network 103, such as the Internet, as well as an anonymous server 105, an inventory server 107 and a smart card reader 109. The inventory server 107 also includes an input device for providing input to the server 107 such as information related to a proposed user transaction. As illustrated, the user device 101, the anonymous server 105 and the inventory server 107 are all computing devices which are enabled to communicate with each other through the interconnection network 103. In the exemplary embodiment, the present invention is applied in a library environment although it is understood that the methodology and system herein disclosed may easily be applied in other business environments to accomplish the desired anonymous transactional functionality.

In the example, a user initially receives an anonymous email identification (ID) or address from the anonymous ID server 105. The user is then issued a so-called "Smart Card" by a library using the anonymous email ID as a guarantor. The

5 card contains, in the card's memory, information concerning limits and conditions of the card as hereinafter noted.

Although a "smart card" is used in the example, it is noted that this function may also be performed by any of many other portable or mobile processing devices with memory. The

10 anonymous ID server 105, in the example, also functions as a transaction guarantor such that transactions executed by the user will be guaranteed by the issuer 105 of the anonymous email ID to the user. The user may be required by the

guarantor to fund a reserve cash account, or other

15 debit/credit account, to cover transactions made by the user up to a predetermined limit consistent with the user's cash account with the guarantor. The card will be programmed with the remaining balance of the user's account which may then be read-out at a library reader for example to ensure that a

20 proposed transaction is fully covered by the cash account held at the anonymous ID/guarantor 105.

A typical smart card 201 is illustrated in Figure 2 and may include, for example, a microprocessor 203, a read/write

25 memory 205, a read only memory 207, a display function 209 (which may include a display device on the card), and storage area 211 for business policies and card information including the anonymous email address of the user of the card. The card 201 also contains an input/output function

30 213 for interfacing with card readers and other processing devices.

After receiving the anonymous email ID, the user will, in the example, have a card issued by a library for example to cover future borrowings by the user. Before the library issues the smart card, the user's identification is 5 confirmed, for example by checking the user's driver's license. Further, the guarantor is identified to the library. The library then checks with the guarantor to insure that the information is correct and also to determine the amount of the guarantee. Several cards may be issued to 10 cover several members of a group such as a family. The user smart card is programmed to designate limits on the card as well as other policy conditions which may be required by the library, for each card. Such programming may include, for example, the maximum number of books, CDs or other available 15 media that may be checked out at any one time by the individual or the individual's family.

The library may also program custom policies such as the library policy regarding the rating of any material, such as 20 "PG" or "PG13" which may be checked out by the user. For "on-line" libraries accessible through the Internet, similar information, including websites which may or may not be accessed, may be transferred or downloaded to a user's card over the Internet. Since the card is an anonymous card, and 25 the user-specific information is located only at the anonymous ID server 105, the lending transactions at the library or over the Internet using the card are strictly anonymous and the lending transaction is accomplished between the library and an anonymous email address at the 30 anonymous ID server 105.

When a user wishes to use the card to execute a lending transaction at a library for example, the specifics of the proposed transaction are input to the inventory server 107 through the input device 111 at the library, and the 5 transaction specifics are compared with the data stored at the guarantee server 105, and also on the smart card as input from the reader 109. If the proposed transaction is authorized or within the policy and other limits stored on the guarantee server 105 and/or as stored on the smart card, 10 then the transaction is approved and the smart card as well as the guarantee server 105 and the inventory server 107 are updated to include the transaction details. Thereafter, if a book or CD needs to be returned early or a loaned item is 15 overdue, the library may correspond with the user through the anonymous email address and the user may also respond accordingly. Thus, the entire transaction and even follow-up transactions are accomplished through the use of the anonymous ID server 105 and the anonymous email address. If the loaned item is destroyed or has not been returned after 20 a maximum time limit, the library has recourse to the anonymous ID server and guarantor 105 for appropriate compensation. The ID/guarantee server 105 is able to charge the cash account of the user for the replacement cost without identifying the user to the library. The remaining 25 balance of the user's cash account with the anonymous ID/guarantee server 105 is then programmed into the user's smart card for future transactions.

In certain applications, the user device 101 may include a 30 smart card I/O device (not shown) to facilitate card updating by the anonymous ID server over the Internet. In every instance that the smart card is used by the owner of

the card, the interfacing computer system, for example the library computer system, checks with the guarantor server 105 to update the guarantor database with regard to the current transaction. At this time, the available guarantee 5 balance is checked as well as the current validity of the card being used. If a transaction is requested by the user and the guarantor server database indicates that the card is no longer valid or that the covering balance in the cardholder's account is insufficient to cover the 10 transaction, then the transaction request is declined by the guarantor server, the library is notified accordingly and the transaction is refused at the library terminal where the request for transaction was initiated.

15 As shown in Figure 3, a main library computer system 301 is arranged to interface with a library policy database 303, a database containing uniform resource locator (URL) addresses 305 and a catalog of site books, as well as available video and audio media 307. In the example, the "Smith" family 20 obtains three cards 309 and the cards are programmed with the library general policies 315 such as allowed access to the library databases of 2 hours at a time for no more than 20 hours in any given month. The policies may also include for example, the limit of 15 books checked out in any given 25 month, 6 videos and 6 audio items as well as the expiration date of the smart card. The cards are also programmed for individual limits and conditions. For example, one card may be programmed to allow unlimited access 311 to available media while another card is programmed to allow only limited 30 access 313 to various categories of available media such as Internet, Audio, Video and Books.

As shown in Figure 4, the anonymous server 105 contains a database which identifies each user's name, and other personal information such as, *inter alia*, the user's address, the guaranteed limit for transactions, the anonymous email ID and the current value of items checked out by the user. All of the information except the anonymous ID are stored in encrypted form and can be decrypted only if the user is not in good standing and attempts to recover checked-out items have failed for a continued predetermined period of time such as 60 days. This condition may be easily programmed into the ID server decrypting process as a condition precedent to allowing the decrypting function. Thus, in this example, even the anonymous server 105 cannot access the user's ID unless the user is not in good standing with the anonymous ID/guarantor 105.

As shown in Figure 5, the inventory server database will include, *inter alia*, the anonymous ID of the user, as well as the item number of a checked-out item, a due date for return of the item and a field to indicate if the item has been reserved for a future date. The reservation information is used for reference if the current user wishes to extend the loan period for a given item.

Figure 6 illustrates the transactional flow between the user 101 and the anonymous ID/guarantor server 105. Initially, the user 101 registers with the third party guarantor 601. The user provides for replacement costs to the guarantor if necessary 603 and the guarantor then issues the anonymous email 605 which may be used by the user in future communications with the library 607 or other transactional entity. It is noted that in the present example, the

anonymous ID provider and the guarantor are the same entity although those functions may also be performed by separate entities. Further, smart cards may be issued by a number of different lenders based upon the user's anonymous email ID 5 with a single guarantor. Since the guarantor maintains an account of the replacement cost for all items checked out, the guarantor can keep track of multiple lenders with regard to the same user guarantee account.

10 The transactional flow between the user and the library in the present example, is illustrated in Figure 6. After the user receives the smart card from the library 701, the card is enabled with general library policies 703 and custom policies related to the individual 705 and the smart card is 15 then ready for use to check out approved items 707.

An exemplary transaction 801 is illustrated in flowchart form in Figure 8. As shown, when a user is ready to check out loaned items from a library for example 803, a check is 20 made to determine if the item is a renewal 805 of an item previously check out. If the request is for a renewal then a check is made to determine if there are any "holds" or reservations for the item 807. If there are reservations, the user cannot check out the item and an appropriate 25 message is given to the user 819 and the process ends 821 for the designated item. The message may be a prerecorded audio message or a video message on a display device or a combination of audio/video presentation. If the item has not been reserved 807 or the item is not for a renewal 805, then 30 a check is made to determine if the total value of items checked out by the user is within the user's limit 809. The user's limit information is available through access to the

user's smart card. If the user is over the user's guaranteed limit then the user cannot check out the designated item and an appropriate message is presented 823, and the processing for that item is ended 817. If the user is within the 5 guaranteed limit 809, then the smart card is updated with information concerning the checked out item 811 and the inventory server database is updated 813. The anonymous server database is also updated 815 to track replacement cost of checked out items and the remaining guarantee 10 balance and the process is ended 817.

The method and apparatus of the present invention has been described in connection with a preferred embodiment as disclosed herein. The disclosed methodology may be 15 implemented in a wide range of sequences, menus and screen designs to accomplish the desired results as herein illustrated. Although an embodiment of the present invention has been shown and described in detail herein, along with certain variants thereof, many other varied embodiments that 20 incorporate the teachings of the invention may be easily constructed by those skilled in the art, and even included or integrated into a processor or CPU or other larger system integrated circuit or chip. The disclosed methodology may also be implemented solely in program code and executed to 25 achieve the beneficial results as described herein. Accordingly, the present invention is not intended to be limited to the specific form set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be reasonably 30 included within the spirit and scope of the invention.